

CLAIMS:

I Claim:

1. A drain tube for colonic irrigation, comprising  
a rigid body having a tubular portion and a side arm extending from a side of said tubular  
portion, said tubular portion having a proximal end adapted to be inserted into a bowel and a distal  
end through which an irrigation tube is inserted, said side arm being adapted to mate with an outflow  
5 tube at a distal end.
2. The drain tube of claim 1, wherein said distal end of said side arm has a tapered edge.
3. The drain tube of claim 2, wherein said distal end of said side arm includes a lip  
projecting outward from an inward end of said tapered edge to prevent disjoining of the outflow tube  
from said side arm.
- 10 4. The drain tube of claim 1, wherein said distal end of said side arm has a smaller outer  
diameter than a remaining portion of said side arm such that said distal end is positionable directly  
within the outflow tube.
5. The drain tube of claim 1, further comprising a rolled bowel sheath.
6. The drain tube of claim 5, wherein said body includes a ridge extending outward  
15 from an outer surface of said tubular portion, said ridge being arranged to retain said bowel sheath.
7. The drain tube of claim 6, wherein said ridge is circumferential, extending outward  
from an outer, circumferential surface of said tubular portion.
8. The drain tube of claim 5, wherein said bowel sheath is made of molded latex or  
silicone.

9. The drain tube of claim 5, further comprising securing means for securing an unrolled portion of said bowel sheath to said body.

10. The drain tube of claim 1, wherein said body is formed from an injection molding process.

5 11. The drain tube of claim 1, wherein said body is transparent.

12. The drain tube of claim 1, wherein said distal end portion of said tubular portion of said body includes at least one thread for mating with a screw cap or seal.

13. The drain tube of claim 1, wherein said body includes at least one circumferential triangular lip arranged at said proximal end of said tubular portion.

10 14. The drain tube of claim 13, wherein each of said at least one triangular lip has a proximal surface angled forward to facilitate insertion of said drain tube into the bowel.

15. The drain tube of claim 14, wherein each of said at least one triangular lip further includes a distal surface substantially perpendicular to an outer circumferential surface of said body to prevent the secured bowel from slipping off of said body.

15 16. The drain tube of claim 13, further comprising a circumferential sewing ring arranged rearward of said at least one triangular lip for securing said body within an open end of the severed bowel.

20 17. The drain tube of claim 1, further comprising a circumferential sewing ring arranged proximate said distal portion of said body for securing said body within an open end of the severed bowel.

18. The drain tube of claim 17, wherein said sewing ring is angled rearward and includes an undercut rear surface defining a notch such that a tip of said sewing ring extends rearward of an inward end of said notch.

19. The drain tube of claim 17, wherein said sewing ring is part of an unitary attachment device for attaching an edge of the bowel to said body, said attachment device further comprising a tie seat for supporting a tie used to tie the bowel around said body.

20. The drain tube of claim 19, wherein said unitary attachment device further comprises a rolled bowel sheath adapted to roll over and cover the area of attachment of said bowel to said body.

21. The drain tube of claim 19, wherein said body includes a ridge extending outward from an outer surface of said tubular portion, further comprising a rolled bowel sheath separate from said unitary attachment device, said ridge being arranged to retain said bowel sheath, said unitary attachment device being arranged over an unrolled portion of said bowel sheath to thereby secure said bowel sheath to said body.

22. The drain tube of claim 17, wherein said sewing ring is made of a soft, elastic, pliable plastic and is separate from said body.

23. A cover for an irrigating tube, comprising:  
a sheath having a crimpable portion extending between a distal end and a proximal end, said distal end being adapted to be fixed to a distal end of the irrigating tube, said sheath defining an interior through which the irrigating tube passes;

an end assembly coupled to said proximal end of said sheath; and  
coupling means for coupling said end assembly to an end of a drain tube.

24. The cover of claim 23, wherein said coupling means comprise a closure member

having at least one thread.

25. The cover of claim 23, further comprising an elastomeric seal arranged in connection with said end assembly for sealing the gap between the outer surface of an irrigating tube and the inner surface of said end assembly.

5 26. The cover of claim 25, further comprising fixing means for fixing said seal to said end assembly.

27. A method for constructing a drain tube for use in intestinal irrigation, comprising the steps of:

10 forming a rigid or semi-rigid body having a tubular portion and a side arm extending from a side of the tubular portion using an injection molding process; and

selecting material to form the body such that the body formed using the injection molding process is transparent and thereby enables effluent flowing through the side arm to be visualized.

15 28. The method of claim 27, wherein the body is formed using the injection molding process such that an inner surface of the body has a lower coefficient of friction in comparison to an inner surface of a body of a drain tube formed using a dip-molding process.

29. The method of claim 27, further comprising the step of molding a distal end of a tubular portion of the body with at least one thread on an outer surface adapted to mate with a screw cap or seal.

20 30. The method of claim 27, further comprising the step of molding at least one circumferential triangular lip at a proximal end of the body having a proximal surface angled forward to facilitate insertion of the drain tube into the bowel and a distal surface substantially perpendicular to an outer circumferential surface of the body to prevent a bowel secured to the body from slipping off the body.

31. The method of claim 27, further comprising the step of molding a ridge on an outer surface of a tubular portion of the body.

32. The method of claim 27, further comprising the step of molding a sewing ring on an outer, circumferential surface of a tubular portion of the body.

5 33. The method of claim 27, further comprising the step of arranging a unitary attachment device on the body, the unitary attachment device including a sewing ring, an elastic tie seat and a bowel sheath.

34. The method of claim 27, further comprising the step of arranging a unitary attachment device on the body, the unitary attachment device including a sewing ring and an elastic tie seat.

10 35. The method of claim 34, further comprising the step of injection molding the sewing ring and tie seat.

36. The method of claim 35, further comprising the step of arranging a separately formed bowel sheath on the tubular body so that at least the rolled portion of the bowel sheath sits rearward of the sewing ring on the tubular body.

15 37. The method of claim 36, comprising the step of mounting the injection molded sewing ring and tie seat over an unrolled portion of the bowel sheath in order to help secure the bowel sheath to the tubular body.

20 38. The method of claim 27, further comprising the step of forming a distal end of the side arm with a smaller diameter than a remaining portion of the side arm such that the distal end of the side arm fits directly within an outflow tube.

39. The method of claim 38, further comprising the step of providing the distal end of

the side arm with a tapered edge and a lip projecting outward from an inward end of the tapered edge.

40. A drain tube for colonic irrigation, comprising

a body having a tubular portion and a side arm extending from a side of said tubular portion, said tubular portion having a proximal end adapted to be inserted into a bowel and a distal end through which an irrigation tube is inserted, said side arm being adapted to mate with an outflow tube at a distal end,

said body includes at least one circumferential triangular lip arranged at said proximal end of said tubular portion, said at least one triangular lip having planar surfaces.

41. The drain tube of claim 40, wherein each of said at least one triangular lip has a proximal surface angled forward to facilitate insertion of said drain tube into the bowel.

42. The drain tube of claim 41, wherein each of said at least one triangular lip further includes a distal surface substantially perpendicular to an outer circumferential surface of said body to prevent the secured bowel from slipping off of said body.

43. The drain tube of claim 40, further comprising a circumferential sewing ring arranged rearward of said at least one triangular lip for securing said body within an open end of the severed bowel.

44. The drain tube of claim 40, wherein said at least one triangular lip comprises a plurality of triangular lips.

45. A drain tube for colonic irrigation, comprising

a body having a tubular portion and a side arm extending from a side of said tubular portion, said tubular portion having a proximal end adapted to be inserted into a bowel and a distal end through which an irrigation tube is inserted, said side arm being adapted to mate with an outflow

tube at a distal end; and

a circumferential sewing ring arranged proximate said distal portion of said body for securing said body within an open end of the severed bowel.

46. The drain tube of claim 45, wherein said sewing ring is angled rearward and includes an undercut rear surface defining a notch such that a tip of said sewing ring extends rearward of an inward end of said notch.

47. The drain tube of claim 45, wherein said sewing ring is part of an unitary attachment device for attaching an edge of the bowel to said body, said attachment device further comprising a tie seat for supporting a tie used to tie the bowel around said body.

48. The drain tube of claim 47, wherein said unitary attachment device further comprises a rolled bowel sheath adapted to roll over and cover the area of attachment of said bowel to said body.

49. The drain tube of claim 47, wherein said body includes a ridge extending outward from an outer surface of said tubular portion, further comprising a rolled bowel sheath separate from said unitary attachment device, said ridge being arranged to retain said bowel sheath, said unitary attachment device being arranged over an unrolled portion of said bowel sheath to thereby secure said bowel sheath to said body.

50. The drain tube of claim 49 wherein said ridge is circumferential, extending outward from an outer, circumferential surface of said tubular portion.

51. The drain tube of claim 45, wherein said sewing ring is made of a soft, elastic, pliable plastic and is separate from said body.

52. The drain tube of claim 45, wherein said sewing ring is integral with said body.

53. A drain tube for colonic irrigation, comprising  
a body having a tubular portion and a side arm extending from a side of said tubular portion,  
said tubular portion having a proximal end adapted to be inserted into a bowel and a distal end  
through which an irrigation tube is inserted, said side arm being adapted to mate with an outflow  
5 tube at a distal end;

a rolled bowel sheath arranged on a proximal portion of said tubular portion and adapted to  
roll over and cover an area of attachment of the bowel to said body; and  
restraining means for restraining said bowel sheath on said tubular portion

54. The drain tube of claim 53, wherein said restraining means comprise a ridge  
10 extending outward from an outer surface of said tubular portion.

55. The drain tube of claim 53, wherein said restraining means comprise a circumferential  
ridge extending outward from an outer, circumferential surface of said tubular portion.

56. The drain tube of claim 53, wherein said bowel sheath is made of molded latex or  
silicone.

57. The drain tube of claim 53, further comprising securing means for securing an  
15 unrolled portion of said bowel sheath to said body.

58. The drain tube of claim 53, wherein said bowel sheath is part of an unitary attachment  
device for attaching an edge of the bowel to said body, said attachment device further comprising  
a circumferential sewing ring arranged proximate said distal end of said body and a tie seat for  
20 supporting a tie used to tie the bowel around said body.

59. The drain tube of claim 53, further comprising a unitary attachment device for  
attaching an edge of the bowel to said body, said unitary attachment device being separate and apart  
from said bowel sheath and comprising a circumferential sewing ring arranged proximate said distal



end of said body and a tie seat for supporting a tie used to tie the bowel around said body, said unitary attachment device being arranged over an unrolled portion of said bowel sheath to thereby secure said bowel sheath to said body.

5 60. A method for attaching a bowel to a drain tube for colonic irrigation, comprising the steps of:

forming a sewing ring on a body of the drain tube;  
inserting the body into an open end of the bowel;  
clamping an edge of the bowel to the sewing ring; and  
suturing the edge of the bowel to the sewing ring.

10 61. The method of claim 60, wherein the step of forming the sewing ring on the body of the drain tube comprises the step of forming the sewing ring integral with the body of the drain tube.

62. The method of claim 60, wherein the step of forming the sewing ring on the body of the drain tube comprises the step of forming the sewing ring separate from the body of the drain tube and arranging the sewing ring around the body of the drain tube.

15 63. The method of claim 62, wherein the sewing ring is formed by a thin membrane which is dip molded into a configuration where it is bent back on itself, further comprising the step of molding the sewing ring, a tie seat for accommodating a tie and a bowel sheath for covering the edge of the bowel as an integral unit.

20 64. The method of claim 60, wherein the step of forming the sewing ring on the body of the drain tube comprises the step of forming the sewing ring with a notch in a rear surface to facilitate clamping of the edge of the bowel to the sewing ring.

65. The method of claim 60, further comprising the steps of:  
arranging a rolled bowel sheath on the body of the drain tube rearward of the sewing ring;

after the edge of the bowel is sutured to the sewing ring, unrolling the bowel sheath over the sutured edge of the bowel; and then  
securing the bowel sheath around the bowel forward of the sutured edge of the bowel.